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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,970

12/08/2003

Kia Silverbrook

MTB07US

9050

24011

7590

09/21/2006

SILVERBROOK RESEARCH PTY LTD  
393 DARLING STREET  
BALMAIN, NSW 2041  
AUSTRALIA

EXAMINER

LEBRON, JANNELLE M

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/728,970	<b>Applicant(s)</b> SILVERBROOK, KIA	
	<b>Examiner</b> Jannelle M. Lebron	<b>Art Unit</b> 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 13-19 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 13-19 and 25-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/03/2006</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "8" has been used to designate both an actuator and a multi-layer substrate. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 25 is objected to because of the following informalities: the word substrate is misspelled as "substarte" in line 2. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6, 7, 13, 18, 19, 25, 26, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Torpey (US Patent 5,801,727).

5. Torpey discloses:

- **Claim 1:**

an inkjet printhead (48 in figure 5; the examiner notes that the limitation “MEMS inkjet” describes a process of manufacturing which is incidental to the claim apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, the process claim limitation is afforded no patentable weight (see MPEP 2113)) comprising a silicon substrate (col. 4, lines 25-30; the examiner notes that the limitation “silicon CMOS substrate” is given no patentable weight since it is not disclosed in the specification or drawings; even though the numeral 8 refers to a multi-layer substrate, it is not disclosed as being composed of silicon CMOS in figs 1-4 of incorporated application 10/320,274 incorporated by reference by the applicant) having a plurality of nozzles (64 in figure 5), each nozzle comprising:

a chamber (16 in figure 2) adapted to contain an ejectable liquid (ink 21 in figure 2); and,

at least one droplet ejection actuator (80 in figure 5) associated with each of the chambers respectively, the droplet ejection actuator being adapted to eject a droplet of the ejectable liquid from the nozzle (column 4, lines 41-44), wherein,

the chambers are mounted on the substrate (col. 4, lines 25-30) and are at least partially formed by an amorphous ceramic material (column 3, lines 47-52).

- **Claim 2:**

wherein the drop ejection actuator (80 in figure 5) is a heater element configured for thermal contact with a bubble forming liquid within the chamber (column 4, lines 35-37); such that,

heating the heater element (80) to a temperature above the boiling point of the bubble forming liquid forms a gas bubble (92 in figure 5) that causes the ejection of a droplet of the ejectable liquid through the nozzle corresponding to that heater element (column 4, lines 41-44).

- **Claim 6:**

wherein the ejectable liquid is the same as the bubble forming liquid (column 4, lines 41-44).

- **Claim 7:**

wherein the printhead is a pagewidth printhead (column 4, lines 23-24).

- **Claim 13:**

a printer system which incorporates a inkjet printhead (48 in figure 5; the examiner notes that the limitation "MEMS inkjet" describes a process of manufacturing which is incidental to the claim apparatus. It is well established that a claimed apparatus cannot

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be distinguished over the prior art by a process limitation. Consequently, the process claim limitation is afforded no patentable weight (see MPEP 2113)), the printhead comprising a silicon substrate (col. 4, lines 25-30; the examiner notes that the limitation "silicon CMOS substrate" is given no patentable weight since it is not disclosed in the specification or drawings; even though the numeral 8 refers to a multi-layer substrate, it is not disclosed as being composed of silicon CMOS in figs 1-4 of incorporated application 10/320,274 incorporated by reference by the applicant) having a plurality of nozzles (64 in figure 5), each nozzle comprising:

a bubble forming chamber (16 in figure 2) adapted to contain a bubble forming liquid (ink 21 in figure 2); and,

at least one heater element (80 in figure 5) disposed in each of the bubble forming chambers respectively, the heater elements configured for thermal contact with the bubble forming liquid (as seen in figure 5); such that,

heating the heater element (80) to a temperature above the boiling point of the bubble forming liquid forms a gas bubble (92 in figure 5) that causes the ejection of a drop of an ejectable liquid from the nozzle corresponding to that heater element (column 4, lines 41-44),

wherein the bubble forming chambers are mounted on the silicon substrate and are at least partially formed by an amorphous ceramic material (column 3, lines 47-52).

- **Claim 18:**

wherein the ejectable liquid is the same as the bubble forming liquid (column 4, lines 41-44).

- **Claim 19:**

wherein the printhead is a pagewidth printhead (column 4, lines 23-24).

- **Claim 25:**

a method of ejecting drops of an ejectable liquid from a MEMS inkjet printhead (48 in figure 5; the examiner notes that the limitation "MEMS inkjet" describes a process of manufacturing which is incidental to the claim apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, the process claim limitation is afforded no patentable weight (see MPEP 2113)), the printhead comprising a silicon substrate (col. 4, lines 25-30; the examiner notes that the limitation "silicon CMOS substrate" is given no patentable weight since it is not disclosed in the specification or drawings; even though the numeral 8 refers to a multi-layer substrate, it is not disclosed as being composed of silicon CMOS in figs 1-4 of incorporated application 10/320,274 incorporated by reference by the applicant) having a plurality of nozzles (64 in figure 5), each nozzle comprising:

a chamber (16 in figure 2) corresponding to each of the nozzles respectively (column 4, lines 25-27), the chambers adapted to contain an ejectable liquid (ink 21 in figure 2); and,

at least one droplet ejection actuator (80 in figure 5) associated with each of the chambers respectively,

wherein the chambers are mounted on the silicon substrate (col. 4, lines 25-30) and are at least partially formed by an amorphous ceramic material (column 3, lines 47-52);

the method comprising the steps of:

placing the ejectable liquid into contact with the drop ejection actuator; and  
actuating the droplet ejection actuator such that a droplet of an ejectable liquid is  
ejected from the corresponding nozzle (column 4, lines 41-44).

- **Claim 26:**

wherein the drop ejection actuator (80 in figure 5) is a heater element configured  
for thermal contact with a bubble forming liquid within the chamber (column 4, lines 35-  
37); such that,

heating the heater element (80) to a temperature above the boiling point of the  
bubble forming liquid forms a gas bubble that causes the ejection of a droplet of the  
ejectable liquid through the nozzle corresponding to that heater element (column 4,  
lines 41-44).

- **Claim 30:**

wherein the ejectable liquid is the same as the bubble forming liquid (column 4,  
lines 41-44).

- **Claim 31:**

wherein the printhead is a pagewidth printhead (column 4, lines 23-24).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all  
obviousness rejections set forth in this Office action:



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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-5, 15-17, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torpey (US Patent 5,801,727).

8. Torpey discloses substantially the claimed invention except for "wherein the amorphous ceramic material is silicon nitride", "wherein the amorphous ceramic material is silicon dioxide", and "wherein the amorphous ceramic material is silicon oxynitride." It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design preference. *In re Leshin*, 125 USPQ 416. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use these types of ceramics as the preferred material in order to lower cost and increase the durability of the printhead by using these well known wear resistant materials to manufacture the chambers.

### ***Response to Amendment***

9. The amendment filed 07/03/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added

material which is not supported by the original disclosure is as follows: a silicon CMOS substrate.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Response to Arguments***

10. Applicant's arguments filed 07/03/2006 have been fully considered but they are not persuasive.

The added limitation "MEMS inkjet printhead" refers to the method steps of manufacturing the printhead. The examiner notes that the claim describes a process of manufacturing which is incidental to the claim apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, the process claim limitation is afforded little patentable weight (see MPEP 2113).

Applicant claims that basis for the addition of a silicon CMOS substrate in which the chambers are mounted can be found in US Application 10/302,274 and figures 17-20 (1-4 in the referenced application). The figures show a multi-layer substrate 8 that mounts the chamber 1, but it is not described as being a silicon CMOS substrate.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

### ***Communication with the USPTO***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jannelle M. Lebron whose telephone number is (571) 272-2729. The examiner can normally be reached on Monday thru Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**Jannelle M. Lebrón**  
**AU 2861**  
**09/15/2006**



**Vip Patel**  
**Supervisory Examiner**  
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